Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently amended) A method of forming a core member for joining to at least one additional core member to form a composite comprising the steps of:

~~a)~~ ——providing a dielectric substrate having opposite faces;

~~b)~~ ——forming an electrically conductive coating on at least one face thereof;

~~c)~~ ——forming at least one opening through said substrate extending from one face to the other and through each conductive coating;

~~d)~~ ——dispensing an electrically conductive material in each of said openings extending through each conductive coating;

~~e)~~ ——removing at least a portion of the surface of the conductive coating on at least one face to thereby allow a nub of the conductive material to extend above the surface of said substrate to thereby form a core in which the nub of the conductive material ~~that~~ can be electrically joined face to face directly with another nub of the same type of conductive material from another core of another substrate ~~structure~~ through said nubs of the conductive material.

2. (Currently amended) The ~~invention as defined in~~ method of claim 1_1 wherein said electrically conductive material is an electrically conductive adhesive that is heated to enhance a flow characteristic of the electrically conductive adhesive as it is dispensed in each of said openings.

3. (Currently amended) The ~~invention as defined in~~ method of claim 1_1 wherein said electrically conductive material is a filled thermoset or thermoplastic polymer.

4. (Currently amended) The ~~invention as defined in~~ method of claim 1_1 wherein said electrically conductive material is a filled polymer.

5. (Currently amended) The ~~invention as defined in~~ method of claim 1, wherein the electrically conductive material is a filled epoxy.

6. (Currently amended) The ~~invention as defined in~~ method of claim [[4]] 5, wherein the epoxy in each of said openings is partially cured to between about 20% and about 80% of complete cure after the epoxy is dispensed in each of said openings so that the epoxy adheres to a same type of epoxy dispensed in other openings in another substrate.

7. (Currently amended) The ~~invention as defined in~~ method of claim 1, further including the step of plating a conductive material on the wall of each of said openings before dispensing said electrically conductive material in each of said openings.

8. (Currently amended) The ~~invention as defined in~~ method of claim 1, wherein the electrically conductive coating is a metal and the portion of the surface is removed by partial etching.

9. (Currently amended) The ~~invention as defined in~~ method of claim 1, wherein the electrically conductive coating is formed as two layers of different metals and where the removal of the surface portion of the electrical conductivity coating is removed by differential etching.

10. (Currently amended) The ~~invention as defined in~~ method of claim 1, wherein at least one circuit trace is formed from said electrically conductive coating and the nub of said electrically conductive material extends above said at least one circuit trace.

11. (Currently amended) The ~~invention as defined in~~ method of claim 1, wherein said electrically conductive material is an electrically conductive adhesive.

12. (Currently amended) The ~~invention as defined in~~ method of claim 1, wherein the substrate is a glass reinforced epoxy.

13. (Canceled)

14. (Canceled.)

15. (Currently amended) The ~~invention as defined in~~ method of claim 1, wherein the electrically conductive material is dispensed into the said at least one opening in multiple passes.

16. (Currently amended) The ~~invention as defined in~~ method of claim 1, wherein any residue of the electrically conductive material remaining on the surface of the electrically conductive coating is removed by polishing.

17. (Canceled)

18. (Currently amended) The ~~invention as defined in~~ method of claim 1, wherein any residue of the electrically conductive material remaining on the surface of the electrically conductive coating is removed by chemical polishing.

19. (Currently amended) A method of forming ~~and joining core members~~ a printed wiring board, comprising:

providing a dielectric substrate having opposite faces;

forming an electrically conductive coating on the faces;

forming an opening through the substrate extending from one face to the other face and through the conductive coatings;

dispensing an electrically conductive material in the openings and through each conductive coating;

removing the conductive coating on the faces;

disposing the substrate between two circuitized members, wherein each of the two members includes a different circuit trace on one face and a pair of bonding pads on an opposite face and the substrate is disposed between the faces having the bonding pads; and

laminating the substrate and the two circuitized members together to form the printed wiring board.

~~providing a first dielectric substrate and a second dielectric substrate, each substrate having opposite faces;~~

~~forming an electrically conductive coating on at least one face of the first and the second dielectric substrates;~~

~~forming at least one opening through the first and the second substrates, the opening extending from one face to the other through the conductive coating;~~

~~dispensing an electrically conductive material in each of the openings, the electrically conductive material extending through the conductive coating;~~

~~removing at least a portion of the surface of the conductive coating on at least one face of the first dielectric substrate to form a first nub of conductive material;~~

~~removing at least a portion of the surface of the conductive coating on at least one face of the second dielectric substrate to form a second nub of conductive material; and~~

~~joining the first and second dielectric substrates by joining the first and second nubs.~~

20. (Currently amended) A method for forming a core member ~~joining printed~~ of a wiring board ~~core elements~~, comprising:

providing a dielectric substrate having a copper coating on one face;

forming an opening through the substrate and the conductive coating;

filling the opening with a silver filled thermosetting epoxy;

partially curing the epoxy;

etching the copper coating by cold cupric chloride etching to form an epoxy protrusion above the etched copper surfaces having a desired uniform height; and

using a photolithographic process to form a circuit on the etched copper surface;

wherein the epoxy protrusion provides a nub for joining the core member with a second nub of a second epoxy protrusion of a second core member.

~~forming a first core member, wherein forming the first core member includes:~~

~~coating a dielectric substrate with a metal;~~

~~forming an opening through the coated substrate;~~

~~filling the opening with a conductive material; and~~

~~thinning the coating to form a protrusion of conductive material that protrudes beyond the substrate and the metal coat;~~

~~forming a second core member, wherein forming the second core member includes:~~

~~repeating the above steps to form the second core member; and~~

~~laminating the first and second core members together by bonding the conductive material protrusions together.~~

21. (New) The method of claim 1, wherein the conductive coating includes a copper layer having a thickness of 35 microns or 70 microns.

22. (New) The method of claim 5, wherein the step of removing the at least the portion of the surface of the conductive coating on the at least one face includes thinning the at least the portion of the surface of the conductive coating on the at least one face to form a circuitized conductive surface on the at least one face.

23. (New) The method of claim 1, further including fully curing the conductive material as the nubs are joined together to form a continuous electrical connection of the conductive material.